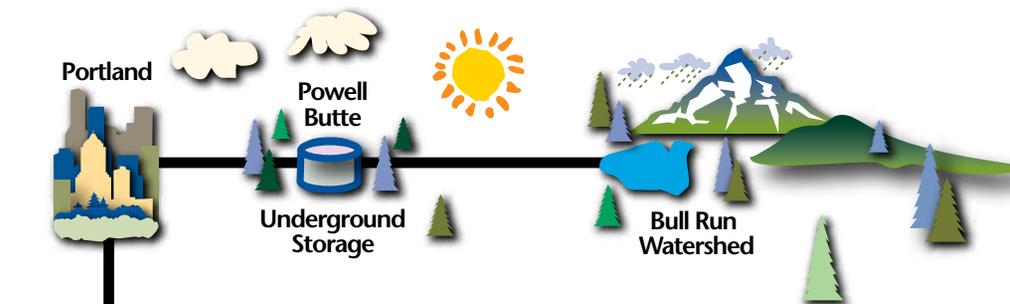


2013 **quality** water REPORT



Water Testing

Tualatin and the Portland Water Bureau monitor for approximately 200 regulated and unregulated contaminants in drinking water, including pesticides and radioactive contaminants. All monitoring data in this report are from 2013. If a known health-related contaminant is not listed in this report, it was not detected in the drinking water by either agency.



Questions?

If you have questions about this report, please contact Mick Wilson at **503-691-3095**. You may also wish to visit the City's website at www.tualatinoregon.gov or call the Oregon Health Authority/Drinking Water Program at **971-673-0405** or visit their website at public.health.oregon.gov/healthyenvironments/drinkingwater/pages/index.aspx



City of Tualatin

Operations Department

18880 SW Martinazzi Avenue
Tualatin, OR 97062

www.tualatinoregon.gov



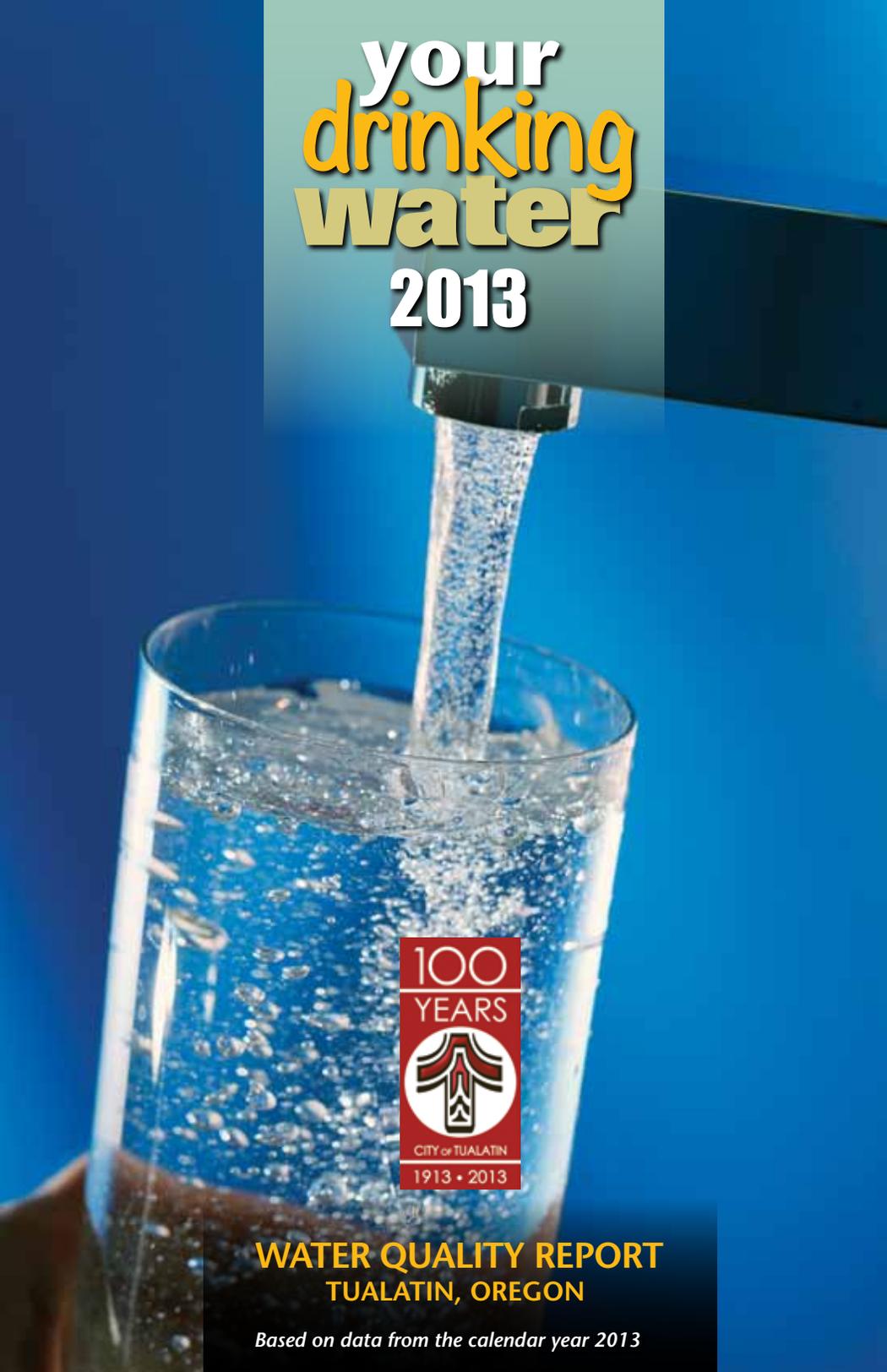
Visit the 2013 Water Quality Report online.



printed on recycled paper

*Este informe contiene información muy importante sobre su agua beber.
Tradúzcalo o hable con alguien que lo entienda bien.*

your drinking water 2013



**WATER QUALITY REPORT
TUALATIN, OREGON**

Based on data from the calendar year 2013

your drinking water 2013

If this information looks familiar, it should. Tualatin has been providing similar information to our customers for fourteen years now. Why every year? It's the law. Drinking water regulations require us to produce and provide this information every year.

Most of the language is also required - Congress and the EPA want to be sure every community knows what is in their drinking water. We agree. So, providing residents and businesses in the Tualatin water service area with safe, dependable, high-quality water at a reasonable cost is a top priority. The City of Tualatin delivers water to more than 26,000 people every day and we think it is important for our customers to understand where their water comes from, how safe it is, and what actions we take to ensure its continuing high quality.

Tualatin's Water Sources

Based on data from the calendar year 2013

The Bull Run Watershed is a surface water supply within the Bull Run Watershed Management Unit located in the Mt. Hood National Forest. A geological ridge separates the watershed from the National Forest. Current regulations, and the availability of the Columbia South Shore Well Field, allows Portland to meet federal drinking water standards without filtering the high-quality Bull Run water supply. The watershed is an area of 102 square miles, and typically receives 80-170 inches of rainfall per year. The heaviest rains occur from late fall through spring. Two reservoirs store water for use year-round, particularly during the dry summer months.

The watershed is only used for producing drinking water. Federal laws restrict public entry. No recreational, residential or industrial uses occur within its boundaries. The Portland Water Bureau carefully monitors water quality and quantity. The Oregon Health Authority Drinking Water Program regularly inspects the watershed and related treatment and distribution facilities.

The Portland Water Bureau has completed a Source Water Assessment for the Bull Run water supply to comply with the 1996 Safe Drinking Water Act Amendments. The only contaminants of concern for the Bull Run water supply are naturally occurring microbial contaminants such as *Giardia*, *Cryptosporidium*, fecal coliform bacteria and total coliform bacteria. These organisms are found in virtually all freshwater ecosystems and may be present in the Bull Run supply at very low levels. The Bull Run supply complies with all applicable state and federal regulations for source water, including the 1989 Surface Water Treatment Rule, filtration-avoidance criteria. The Portland Water Bureau is also operating under a variance for the treatment requirements for *Cryptosporidium*, read further for more information. The Source Water Assessment Report is available at www.portlandonline.com/water/soucewaterassessment or by calling 503-823-7525.

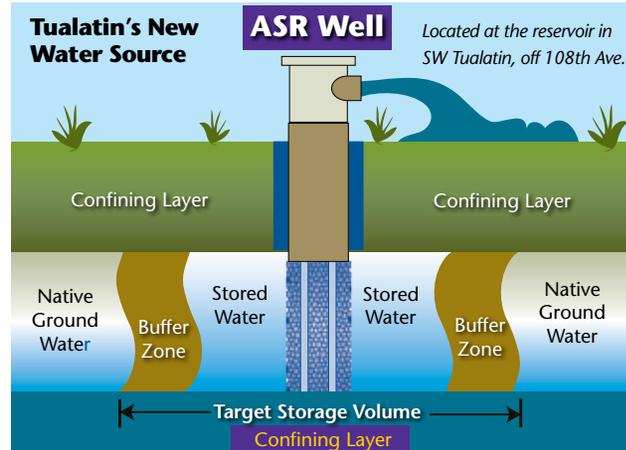
The Columbia South Shore Well Field provides high-quality drinking water from groundwater production wells located in three different aquifers. In 2013, over the course of 7 days beginning July 20, the Portland Water Bureau supplemented the Bull Run drinking water supply with approximately 30 million gallons of groundwater as part of an annual groundwater maintenance operation.

Portland has a long history of groundwater protection in the Columbia South Shore dating back to the original development of the well field in the early 1980s. In June 2008, the State certified the most recent update of the Columbia South Shore Well Field Protection Program. This program, a collaborative effort of Portland, Gresham and Fairview, has identified commercial and industrial activities as the most significant potential sources of contamination. Together these cities regulate businesses in the groundwater protection area to prevent hazardous material spills that could seep into the ground. Public events such as Aquifer Adventure, Cycle the Well Field and Groundwater 101 educate local residents on how to help protect groundwater. To obtain a copy of Portland's Well Field Protection Program certification, which includes information on potential sources of contamination, call 503-823-7473. To read program information, find upcoming events, and learn how to help protect groundwater, visit the Water Bureau's groundwater website at www.portlandoregon.gov/water/groundwater.

Drinking Water Treatment

The first step in the treatment process for our Bull Run System drinking water is disinfection using chlorine. Next, ammonia is added to form chloramines which ensure that disinfection remains adequate throughout the distribution system.

We also add sodium hydroxide to increase the pH of the water to reduce corrosion of plumbing systems. This treatment helps control lead and copper levels at customers' taps, should these metals be present in the customers' home plumbing.



Tualatin's Aquifer Storage and Recovery Program

The ASR Program injects water into an aquifer through wells or by surface spreading and infiltration and then pumps it out when water is needed. The aquifer essentially functions as a water bank. Deposits are made in times of surplus, typically during the rainy season, and withdrawals occur when available water falls short of demand.

Definitions

- **Maximum Contaminant Level Goal or MCLG** - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Maximum Contaminant Level or MCL** - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible, using the best available treatment technology.
- **Maximum Residual Disinfectant Level Goal or MRDLG** - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Maximum Residual Disinfectant Level or MRDL** - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Treatment Technique** - A required process intended to reduce the level of a contaminant in drinking water.
- **Action Level** - The concentration of a contaminant which, if exceeded, triggers treatment and other requirements that a water system must follow.
- **Part Per Million** - One ppm corresponds to one penny in \$10,000 or approximately one minute in two years. One part per million is equal to 1000 parts per billion.
- **Part Per Billion** - One ppb corresponds to one penny in \$10,000,000 or approximately one minute in 2000 years.
- **Picocuries Per Liter** - Picocurie is a measure of radioactivity. One picocurie is a trillion times smaller than one curie.



The EPA's Views on Drinking Water Contaminants

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline at 800-426-4791 or at www.epa.gov/safewater.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants in drinking water sources may include:

- Microbial contaminants, such as viruses and bacteria, which may come from wildlife or septic systems.
- Inorganic contaminants, such as salts and metals, which can occur naturally or result from urban stormwater runoff, industrial or domestic wastewater discharges or farming.
- Pesticides and herbicides, which may come from a variety of sources such as farming, urban stormwater runoff and home or business use.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes, and can also come from gas stations, urban stormwater runoff and septic systems.
- Radioactive contaminants, which can occur naturally.

In order to ensure that tap water is safe to drink, the EPA has regulations that limit the amount of certain contaminants in water provided by public water systems and require monitoring for these contaminants. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Special Notice for Immuno-Compromised Persons

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people (such as those with cancer undergoing chemotherapy, who have undergone organ transplants, with HIV/AIDS or other immune system disorders, some elderly, and infants) can be particularly at risk for infections. These people should seek advice from their health care providers about their drinking water. Environmental Protection Agency/Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the **Safe Drinking Water Hotline at 800-426-4791**.

Water Quality Data 2013

Regulated Contaminant	Minimum Detected	Maximum Detected	MCL or Treatment Technique	MCLG	Typical Source
CONTAMINANTS DETECTED IN 2013			<i>UNTREATED SOURCE WATER FROM BULL RUN WATERSHED</i>		
Turbidity	0.16 NTU	3.13 NTU	Can't exceed 5 NTU more than 2x per year	N/A	Erosion of natural deposits
<i>Giardia</i>	Not Detected	2 Giardia cysts were found in 11.3 liters	Treatment Required: Disinfection to kill 99% of cysts	N/A	Animal wastes
Fecal Coliform Bacteria	Not Detected	2 samples: #1 had 24 bacterial colonies* #2 had 27 bacterial colonies* per 100ml water	90% of samples/last 6 mo./20 or fewer colonies per 100ml water	N/A	Animal wastes
NUTRIENTS			<i>TREATED DRINKING WATER FROM BULL RUN/COLUMBIA SOUTH SHORE WELL FIELD/ENTRY POINTS TO DISTRIBUTION SYSTEM</i>		
Nitrate Nitrogen	<0.01 ppm	0.23 ppm	10 ppm	10 ppm	Natural aquifer deposits; animal wastes
METALS & MINERALS/MICROBIOLOGICAL*			<i>TREATED DRINKING WATER FROM BULL RUN/COLUMBIA SOUTH SHORE WELL FIELD/ENTRY POINTS TO DISTRIBUTION SYSTEM</i>		
Arsenic	<0.50 ppb	.88 ppb	10 ppb	0 ppb	Natural aquifer deposits
Barium	<0.00091 ppm	0.0081 ppm	2 ppm	2 ppm	Natural aquifer deposits
Chromium (total)	<0.50 ppb	0.82 ppb	100 ppb	100 ppb	Natural aquifer deposits
Copper	<0.00050 ppm	0.0011 ppm	N/A	1.3 ppm	Natural aquifer deposits
Fluoride	<0.025 ppm	0.13 ppm	4 ppm	4 ppm	Natural aquifer deposits
DISINFECTION BYPRODUCTS			<i>TUALATIN DISTRIBUTION SYSTEM - RESERVOIRS/TANKS/MAINS</i>		
Haloacetic Acids Annual Average (All) Single result (one site)	18ppb 5 ppb LRAA	30 ppb 49 ppb LRAA	60 ppb N/A	N/A N/A	Byproduct of drinking water disinfection
Total Trihalomethanes Annual Average (All) Single result (one site)	16 ppb 8 ppb LRAA	29 ppb 49 ppb LRAA	80 ppb N/A	N/A N/A	Byproduct of drinking water disinfection
REGULATED CONTAMINANTS			<i>TUALATIN DISTRIBUTION SYSTEM - RESERVOIRS/TANKS/MAINS</i>		
Total Chlorine Residual Annual Average (All) Single result (one site)	1.38 ppm .22 ppm	N/A 2.8 ppm	4 ppm N/A	4 ppm N/A	Chlorine and ammonia disinfection

* During the year, tests with varying method reporting limits (MRLs) were used to analyze copper. The sample with results of <0.002 was analyzed by the test with a less sensitive MRL; this results in data where the minimum appears to be greater than the maximum.

Water Quality Data 2013

UNREGULATED CONTAMINANTS - ENTRY TO DISTRIBUTION SYSTEM

Contaminant	Minimum Detected	Average Detected	Maximum Detected	Typical Source
Nickel	<0.2 ppb	0.25 ppb	0.8 ppb	Found in natural aquifer deposits
Sodium (<i>Bull Run</i>)	2.8 ppm	6.9 ppm	17 ppm	
Sodium at ASR	5.2 ppm	13.0 ppm	18 ppm	

Bull Run Treatment Variance

On March 14, 2012 the Oregon Health Authority (OHA) issued the Portland Water Bureau a variance from the state and federal drinking water rules requiring the treatment of raw water from the Bull Run watershed for the parasite *Cryptosporidium*. A variance is state permission not to meet an MCL or a treatment technique under certain conditions. A state may grant a variance if a water system demonstrates that the required treatment is not necessary to protect public health because of the nature of the water system's raw water source. OHA issued Portland Water Bureau the treatment variance for *Cryptosporidium* based on substantial data and analyses presented in the LT2 Treatment Variance Request for the Bull Run drinking water source. The Portland Water Bureau is the only system in the United States to have received a variance to the treatment requirements for *Cryptosporidium* based on the high quality of its raw water and therefore does not provide treatment for *Cryptosporidium*.

As a result of the treatment variance, the following are among the state-mandated conditions that must be met in order to maintain the variance: **Watershed Protection, Raw Water Intake Monitoring, and Reporting and Notification.** The treatment variance is valid for a period of 10 years from the date it was issued. OHA may revoke the variance if the conditions of the variance are not met.

Contaminant	Number of Samples	Total Volume	Amount Detected	Typical Source
<i>Cryptosporidium</i> (Raw water Intake)	244	5,825.4 liters	None	Parasite from animal waste

In 2013, there were no detections of *Cryptosporidium* during Raw Water Intake Monitoring. The most recent monthly intake reports can be found at www.portlandoregon.gov/water/BRTVIntakeReports.

For more information:

- Recent monthly intake reports: www.portlandoregon.gov/water/BRTVIntakeReports
- Recent Bull Run Treatment Variance Report: www.portlandoregon.gov/water/2013BRTVReport
- Additional information on Portland's treatment variance: www.portlandoregon.gov/water/treatmentvariance.

Notes on Unregulated Contaminants

Nickel - Nickel is a metal found in the earth's crust; they can dissolve into water that is in contact with natural deposits. There are currently no maximum contaminant levels for nickel. At the levels found, they are unlikely to contribute to adverse health effects.

Sodium - There is currently no drinking water standard for sodium. Sodium is an essential nutrient. At the levels found in drinking water, it is unlikely to contribute to adverse health effects.

Notes on Regulated Contaminants

Turbidity - Bull Run is an unfiltered surface water supply. The rules for public water systems have strict standards for unfiltered surface water supplies. Turbidity levels in unfiltered water must not exceed 5 NTU (nephelometric turbidity units) more than two times in a twelve-month period. The typical cause of turbidity is sediment suspended in the water. The sediment can interfere with disinfection and provide an environment for microbial growth. Large storm events can result in increased turbidity, causing the Portland Water Bureau to shut down the Bull Run system and serve water from the Columbia South Shore Well Field.

Total Organic Carbon - Total Organic Carbon (TOC) is naturally found in water and can react with disinfectants to produce disinfection by-products (DBPs). The Portland Water Bureau monitors for TOC to qualify for reduced DBP monitoring. Surface water systems are eligible for reduced DBP monitoring when DBP levels are $\leq 50\%$ of the MCL and TOC monitoring is ≤ 4.0 mg/L.

Giardia - Wildlife in the watershed may be hosts to Giardia, the organism that causes giardiasis. The Portland Water Bureau uses chlorine to control these organisms.

Fecal Coliform Bacteria - The presence of fecal coliform bacteria in source water indicates that water may be contaminated with animal wastes. The Portland Water Bureau uses chlorine to kill these bacteria.

Nitrate-Nitrogen - Nitrate, measured as nitrogen, can support microbial growth (bacteria and algae). Nitrate levels exceeding the standards can contribute to health problems. At the levels found in Portland's drinking water, Nitrate is unlikely to contribute to adverse health effects.

Arsenic, Barium, Chromium (total), and Fluoride - These metals are elements found in the earth's crust which can dissolve into water that is in contact with natural deposits. At the levels found in Portland's drinking water, they are unlikely to contribute to adverse health effects.

Copper and Lead - There is no maximum contaminant level (MCL) for copper and lead at the entry point to the distribution system. The main source of copper and lead is the corrosion of building plumbing. Copper and lead are tested at customers' taps where levels are the highest. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. For more information see Reducing Exposure to Lead.

Total Coliform Bacteria - Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially-harmful bacteria may be present. The Portland Water Bureau uses chlorine to kill these bacteria.

Disinfection Byproducts - During disinfection, certain byproducts form as a result of chemical reactions between chlorine and naturally occurring organic matter in the water. These byproducts can have negative health effects. Trihalomethanes and haloacetic acids (regulated disinfection byproducts) were detected in Portland's water. The disinfection process is carefully controlled to remain effective, while keeping byproduct levels low.

Total Chlorine Residual - Total chlorine residual is a measure of free chlorine and combined chlorine and ammonia in our distribution system. Chlorine residual is necessary to maintain disinfection throughout the distribution system. Adding ammonia to chlorine results in a more stable disinfectant and helps to minimize the formation of disinfection byproducts.

Water Quality Data 2013

Lead in Drinking Water and Household Plumbing

LEAD AND COPPER

SAMPLING AT RESIDENTIAL WATER TAPS

90th Percentile Values	Number of Sites Over AL	Exceeding Lead & Copper Rule	MCLG	Typical Source
Copper 0.48 ppm	0 of 108 samples exceeded AL (1.3 ppm)	Over 10% of homes tested had levels > 1.3 ppm	1.3 ppm	Corrosion of household and commercial plumbing systems
Lead 16 ppb	13 of 108 samples (12%) exceeded AL (15 ppb)	Over 10% of homes tested had levels > 15 ppb	0 ppb	Corrosion of household and commercial plumbing systems

Reduce Your Exposure To Lead

The City of Tualatin encourages you to follow these easy steps:

- 1. RUN YOUR WATER TO FLUSH OUT LEAD.** Before drinking or cooking, run water for 30 seconds to 2 minutes (or until colder) when the tap has not been used for several hours.
- 2. USE COLD, FRESH WATER FOR COOKING AND PREPARING BABY FORMULA.** Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water.
- 3. DO NOT BOIL WATER TO REMOVE LEAD.** Boiling water will not reduce lead.
- 4. CONSIDER USING A FILTER.** One that reduces lead – not all filters do. Contact NSF International at 800-NSF-8010 or www.nsf.org for more information on filters.
- 5. TEST YOUR WATER FOR LEAD.** Call the LeadLine at 503-988-4000 to find out how to get a FREE lead-in-water test.
- 6. TEST YOUR CHILD FOR LEAD.** Ask your physician or call the LeadLine to find out how to have your child tested for lead. A blood lead level test is the only way to know if your child is being exposed to lead.
- 7. REGULARLY CLEAN YOUR FAUCET AERATOR.** Particles containing lead from solder or household plumbing can become trapped in your faucet aerator. Regular cleaning every few months will remove these particles and reduce your exposure to lead.
- 8. CONSIDER BUYING LOW-LEAD FIXTURES.** As of January 2014, all pipes, fittings and fixtures are required to contain less than 0.25% lead. When buying new fixtures, consumers should seek out those with the lowest lead content.

Call the LeadLine or visit www.leadline.org for information about lead hazards, free lead-in-water testing, free childhood blood lead testing and referrals to other lead reduction services.

IMPORTANT INFORMATION ABOUT LEAD

Tualatin has removed all known lead service connections from its distribution system. Exposure to lead through drinking water is possible if materials in a building's plumbing contain lead. The level of lead in water can increase when water stands in contact with lead-based solder and brass faucets containing lead.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Tualatin, along with the Portland Water Bureau, is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your drinking water, you may wish to request a free lead-in-water test from the LeadLine. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the LeadLine, 503-988-4000, www.leadline.org or the Safe Drinking Water Hotline 800-426-4791, www.epa.gov/safewater/lead.

People are exposed to lead in many other ways. Dust from paint in homes built before 1978 is the most common source of exposure to lead. Other sources include soil, pottery, traditional folk medicines or cosmetics, some sports equipment such as fishing weights and ammunition, and some occupations and hobbies.

Corrosion Treatment. The Portland Water Bureau's corrosion control treatment reduces corrosion in plumbing by increasing the pH of the water. Comparison of monitoring results with and without pH adjustment shows over 50 percent reduction in lead at the tap with pH adjustment.

Water Testing. Twice each year, the City of Tualatin, along with all other wholesale water users and the Portland Water Bureau, monitor for lead in tap water from a sample group of more than 100 homes. These are homes in our service area where the plumbing is known to contain lead solder, which is more likely to contribute to elevated lead levels. Samples are collected after the water has been standing in the household plumbing for more than six hours. These houses represent a worst-case scenario for lead in water. A Lead and Copper Rule exceedance for lead is when more than 10 percent of these homes exceed the lead action level of 15 parts per billion.

If you are concerned that your home tap water may have lead, contact the LeadLine for a free lead-in-water test kit and to learn ways to reduce your exposure to all sources of lead. This program targets testing the water in households most at-risk from lead in water. These are homes built between 1970 and 1985 with pregnant women or children ages six or younger in the home.

In the most recent round of testing, more than 10 percent of homes exceeded the lead action level. As a result of exceeding the action level the Portland Water Bureau has been informing customers and encouraging them to follow the easy steps to reduce exposure to lead in water.